

Structure and Dynamics of Whitebark Pine Forests in the Warner Mountains, Northeastern California

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We examined the structural characteristics and dynamics of whitebark pine (*Pinus albicaulis*) stands along a 640 m elevation gradient in the Warner Mountains of northeastern California. Permanent plots were established along systematically located transects in 1994, and trees within those plots were marked and inventoried.

Whitebark pine forest structure and dynamics vary with elevation. At lower elevations (below approximately 2500 m), stands are characterized by low stem density and basal area, by relatively young, small trees, and by little downed wood and very few snags. Age structure of these stands suggests that whitebark pine began expanding down slope into sagebrush-steppe habitat in the latter half of the 19th century. Higher elevation (above approximately 2500 m) stands generally exhibit structural characteristics that suggest suggesting old, self-perpetuating stands: uneven (approximating “reverse-J” shaped) diameter and age distributions, individual trees of great size and age, occasional snags, and greater amounts of downed wood. Other structural components (density, basal area, tree height and maximum diameter) of these higher stands vary with elevation. Whitebark pine regeneration is occurring at all elevations, but sapling and seedling density are uniformly lower than that of tree density.

Field observations in 1994 suggested that a maximum of 6% of the trees within the study plots were infected with white pine blister rust. Standing, dead stems occurred at a density of 30.1/ha and comprised 2.6% of all stems measured.

In 2006, plots will be revisited and the fate of previously marked trees will be assessed. Preliminary results will be presented regarding tree mortality over the twelve-period and current rates of blister rust infection.